Listing of the Claims:

1. (amended) A method of designing tread for a traction surface, comprising the steps of:

(a) selecting a substrate surface intended for **frictional** contact with the traction surface;

(b) characterizing the topography of said substrate surface;

(c) selecting a pattern having fractal characteristics corresponding to said characterized topography of said substrate surface; and then

(d) generating a tread design which incorporates said pattern.

2. (amended) The method of claim 1,

wherein the step of:
(a) selecting a substrate surface intended for **frictional** contact with the traction surface comprises a substep of

(a.1) identifying acceptable traction between said traction surface and said substrate surface;

and wherein the step of:
(b) characterizing said topography of said substrate surface comprises a substep of:

(b.1) measuring the dimensions of said substrate surface with which said tread is intended for contact;

and wherein the step of:
(c) selecting a pattern having fractal characteristics corresponding to said characterized topography of said substrate surface comprises substeps of

(c.1) generating a plurality of experimental treads having fractal characteristics;

and

(c.2) generating an experimental surface approximating or being said measured surface;

and wherein the step of:
(d) generating a tread design which incorporates said pattern
is followed by the steps of:

(e) testing said tread design by measuring the friction force between each of said experimental treads and said experimental surface;

(f) iteratively repeating steps (c) to (e) until the measured friction force between one of said experimental treads and said experimental surface is at least the acceptable traction identified in step (a.1);

(g) selecting the pattern of an experimental tread having at least the acceptable traction identified in step (a.1);

and
(h) generating a final tread design which incorporates the selected pattern.

3. (amended) The method ~~claimed in~~ of claim 1, wherein the step of:
(b) characterizing said topography of said substrate surface comprises the substeps of:

(b.1) generating a surface roughness profile;

(b.2) representing said topography as a log-log power spectrum;

(b.3) subjecting said power spectrum to a waveform transformation;

and

(b.4) approximating said transform of said topography by an ideal waveform;

and wherein the step of:

(c) selecting a pattern having fractal characteristics corresponding to said characterized topography of said substrate surface comprises a substep of:

(c.1) selecting a pattern having fractal characteristics that matches said ideal waveform approximating the substrate surface substrate topography.

4. (original) The method of claim 1, wherein said pattern has a plurality of elements, each of said elements being a member of a size group, wherein the length of one or more dimensions of each member of each size group is the same as that of the corresponding dimension of the other members of the size group,

and wherein the relative number of elements in each size group in said pattern corresponds to the relative number of elements in a corresponding size group in the substrate intended for contact with the traction surface.

5. (original) The method of claim 4, wherein the length of one or more dimensions of elements in each said size group in said pattern is one-half of the corresponding dimension of the elements in the next larger size group in said pattern.

6. (original) The method of claim 4, wherein if the length of one or more dimensions of

elements in each said size group is represented by **n** then the corresponding dimension of the elements in each next larger size group in said pattern is n^2.

7. (original) The method of claim 4, wherein if the length of one or more dimensions of elements in each said size group is represented by **n** then the corresponding dimension of the elements in each next larger size group in said pattern is n^3.

8. (original) The method of claim 4, wherein if the length of one or more dimensions of elements in each said size group is represented by **n** then the corresponding dimension of the elements in each next larger size group in said pattern is 2^n, wherein **n** is a real number from 1 to 2.

9. (original) The method of claim 1, wherein said pattern having fractal characteristics comprises elements having rectilinear shape.

10. (original) The method of claim 1, wherein said pattern having fractal characteristics comprises elements having curvilinear shape.

11 (original) The method of claim 10, wherein said pattern having fractal characteristics further comprises elements having said rectilinear shape.

12. (original) The method of claim 1, wherein said pattern having fractal characteristics comprises elements of circular shape.

13. (original) The method of claim 1, wherein said pattern having fractal characteristics comprises elements of triangular shape.

14. (original) The method of claim 1, wherein said pattern having fractal characteristics comprises elements of cone shape.

15. (original) The method of claim 1, wherein said pattern having fractal characteristics comprises elements of H shape.

16. (original) The method of claim 1, wherein said pattern having fractal characteristics comprises elements of cylindrical shape.

17. (original) The method of claim 1, wherein the tread designed by said method is a shoe tread, a belt drive tread, a tire tread, a tread for an elastomeric traction surface, a drive roller tread, a tread for friction wheels for material locomotion, a tread for power transmission, a belt drive tread for a pulley drive or other device requiring friction to transmit a tractional force.

18. (original) A tire tread designed by the method of claim 2, comprising a plurality of tread elements defining protuberances and voids on an outer tire surface;said tire tread being circumferentially positioned on the outer tire surface for contact with a road surface;

whereby said tread elements define a pattern having fractal characteristics.

19. (original) A tread of claim 18, wherein the selected substrate surface intended for contact with the tread is snow.

20. (original) A tread of claim 18, wherein the selected substrate surface intended for contact with the tread is sand.

21. (original) A tire tread designed by the method of claim 3, comprising a plurality of tread elements defining protuberances and voids on an outer tire surface;

said tire tread being circumferentially positioned on the outer tire surface for contact with a road surface;

whereby said tread elements define a pattern having fractal characteristics.

22. (original) A tread of claim 21, wherein the selected substrate surface intended for contact with the tread is snow.

23. (original) A tread of claim 21, wherein the selected substrate surface intended for contact with the tread is sand.